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26. The process according to claim 11, wherein dewatering speeds in the at least two zones are different.---

REMARKS

*Summary of the Amendment*

Upon entry of the above amendment, the Substitute Specification will have been entered to replace the originally submitted Specification, and the Substitute Specification and claims 1, 3, 6, 8, 11, 16, 19, and 21 will have been amended. Further, new claims 25 and 26 will have been entered for consideration by the Examiner. Accordingly, claims 1 - 26 are currently pending.

*Summary of the Official Action*

In the instant Office Action, the Examiner has rejected claims 8 and 21 based upon formal matters and has rejected claims 1 - 24 over the art of record. By the present amendment and remarks, Applicants submit that the rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

*Interview with Examiner Hastings*

OK  
KMA  
Applicants gratefully acknowledge the courtesy extended to their representative by Examiner Hastings in conducting a personal interview on April 11, 2002. In the interview, the distinguishing features of the present invention were discussed, and it was agreed that the independent claims would be amended to more clearly recite structural features of the

dewatering wire, and that a Substitute Specification would be submitted to correct the informality of two paragraphs numbered “[0048].”

***Entry of Substitute Specification is Appropriate***

Applicants submit that entry of the Substitute Specification is appropriate under 37 C.F.R. 1.125(b) and (c) so that amendments to the specification may be made by replacement paragraphs. As the only change is directed to changing the paragraph numbering, Applicants submit that, according to 37 C.F.R. 1.125(b)(2), no marked-up copy of the specification is required.

Accordingly, entry of the Substitute Specification is requested.

***Amendments to Substitute Specification***

Applicants have amended the Substitute Specification to even more clearly indicate that the zonally variable permeability of the dewatering water refers to zones having different permeabilities. Accordingly, the Substitute Specification has been amended to parenthetically indicate that zonally variable permeability refers to zonally different permeability.

Support for this amendment is found throughout the specification and drawings. Moreover, this amendment is in conformance with the discussion with Examiner Hastings in the above-noted interview.

***Objection to Drawings is Moot***

Concurrently herewith, Applicants are submitting formal drawings to the Draftsperson

which correspond to the drawings as originally submitted and which address the objections noted by the Examiner on the Office Action Summary sheet forwarded with the instant Office Action.

Accordingly, an indication that the drawings are acceptable is requested with the next official communication to the undersigned.

***Traversal of Rejection Under 35 U.S.C. § 112, Second Paragraph***

Applicants traverse the rejection of claims 8 and 21 under 35 U.S.C. § 112, second paragraph, as being indefinite. By the present amendment Applicants have amended claims 8 and 21 in accordance with the Examiner's suggestions so as to clarify the claims.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 8 and 21 under 35 U.S.C. § 112, second paragraph, and indicate that these claims are fully in compliance with the requirements of the statute.

***Traversal of Rejection Under 35 U.S.C. § 102(b)/35 U.S.C. § 103(a)***

Applicants traverse the rejection of claims 1 - 8, 11, and 15 - 24 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over KAMPS et al. (U.S. Patent No. 6,203,663) [hereinafter "KAMPS"].

Applicants' independent claim 1 recites, *inter alia*, a forming region with at least one circulating, continuous dewatering wire, wherein said dewatering wire comprises *at least two zones* having *different wire permeabilities* formed by warp and weft threads. Applicants' independent claim 11 recites, *inter alia*, forming the tissue web in a forming region of the

tissue machine on at least one circulating, continuous dewatering wire comprising *at least two zones* having *different wire permeabilities* formed by warp and weft threads. Applicants submit that KAMPS fails to disclose or suggest at least the above-noted features of the instant invention.

Applicants note that KAMPS provides an apparatus and process intended to improve an *optical* property, i.e., the appearance, of a tissue web, whereas the instant invention provides an apparatus and process to improve physical characteristics of the web, e.g., water absorption capacity, water absorption rate, water retention capacity, specific volume, *see* Specification, paragraph [0004]. According to the instant invention, the above-noted physical properties of the web are improved by a forming region having at least one circulating, continuous dewatering wire comprising at least two zones having different wire permeabilities formed by warp and weft threads.

As noted above, KAMPS is structured to change the appearance of the web, not its physical characteristics. To achieve this goal, KAMPS discloses a forming device that includes forming wires having designs formed on the wire, e.g., silk screened. However, contrary to the features of the instant invention, KAMPS fails to disclose or suggest that the design is formed as part of a weave pattern.

Further, KAMPS fails to provide any disclosure or suggestion that the forming wires include at least two zones having different wire permeabilities, as recited in at least

independent claims 1 and 11, as now amended. In fact, Applicants note that KAMPS fails to provide any discussion that the wire includes different zones having different wire permeabilities.

Because KAMPS fails to disclose at least the above-noted features of the invention, Applicants submit that this document fails to provide an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), and that the rejection is improper and should be withdrawn.

Further, because KAMPS fails to provide any teaching or suggestion of affecting the physical properties of the web, Applicants submit that there is no teaching or suggestion to motivate one ordinarily skilled in the art to modify KAMPS so as to include at least two zones having different wire permeabilities. In other words, Applicants submit that, as KAMPS does not recognize the problem addressed by the instant invention, the art fails to provide the requisite rationale for modifying KAMPS in the manner asserted by the Examiner.

Thus, Applicants further submit that KAMPS fails to teach or suggest the combination of features recited in at least independent claims 1 and 11, and that the art fails to provide any suggestion for modifying KAMPS in any manner which would render the instant invention obvious. Therefore, Applicants submit that the rejection is improper and should be withdrawn.

Further, Applicants submit that claims 2 - 8 and 15 - 24 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper modification of KAMPS teaches or suggests, *inter alia*, said at least one dewatering wire is provided in an initial dewatering region, as recited in claim 2; a former which includes a forming element and two circulating, continuous dewatering belts, at least one of which comprises said at least one dewatering wire with at least two different wire permeabilities, said two circulating belts being arranged to converge to form a stock inlet nip, and then being guided over said forming element, as an outer belt, which does not come into contact with said forming element and as an inner belt, wherein at least one of said outer belt and said inner belt comprise said at least one dewatering wire with at least two different wire permeabilities, as recited in claim 3; said forming element comprises a forming roll, as recited in claim 4; said former comprises a double wire former, as recited in claim 5; said former comprises a crescent former, wherein said outer belt is formed by said at least one dewatering wire with at least two different wire permeabilities and wherein said inner belt is formed by a felt belt, as recited in claim 6; said at least one dewatering wire comprises a woven material formed of warp and weft threads, as recited in claim 7; said at least two zones of different wire permeabilities of said at least one dewatering wire are formed by weaving threads of at least one of different diameter and different weaving pattern, as recited

in claim 8; using the at least one dewatering wire in an initial dewatering region, as recited in claim 15; the use of a former which includes a forming element and two circulating, continuous dewatering belts, at least one of which comprises said at least one dewatering wire with at least two different wire permeabilities; the two circulating belts being arranged to converge to form a stock inlet nip, and then being guided over the forming element, as an outer belt, which does not come into contact with the forming element and as an inner belt, wherein at least one of the outer belt and the inner belt comprise the at least one dewatering wire with at least two different wire permeabilities, as recited in claim 16; the forming element comprises a forming roll, as recited in claim 17; the former comprises a double wire former, as recited in claim 18; the former comprises a crescent former, wherein the outer belt is formed by a dewatering wire with at least two different wire permeabilities and wherein the inner belt is formed by a felt belt, as recited in claim 19; the at least one dewatering wire comprises a woven material formed of warp and weft threads, as recited in claim 20; the at least two zones of different wire permeabilities of the at least one dewatering wire are formed by weaving threads comprising at least one of different diameter and different weaving pattern, as recited in claim 21; the at least one dewatering wire is used in a region in which a dry content of the tissue web is less than approximately 20%, as recited in claim 22; the dry content of the tissue web is less than approximately 12%, as recited in claim 23; and the at least one dewatering wire is used in an initial sheet forming region at a dry content less than

approximately 6%, as recited in claim 24.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1 - 8, 11, and 15 - 24 under 35 U.S.C. §102(b)/35 U.S.C. § 103(a) and indicate that the claims are allowable.

***Traversal of Rejection Under 35 U.S.C. § 103(a)***

***1. Over Kamps in view of Kotitschke***

Applicants traverse the rejection of claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over KAMPS and further in view of KOTITSCHKE (U.S. Patent No. 5,517,714).

Applicants note that, like KAMPS discussed above, KOTITISCHKE fails to teach or suggest a dewatering wire having at least two zones with different wire permeabilities, and certainly fails to teach or suggest that the different wire permeabilities are formed by warp and weft threads.

As both applied documents fail to teach or suggest at least the above-noted features, Applicants submit that no proper combination of these documents can render unpatentable the combination of features recited in at least independent claims 1 and 11, as now amended.

Moreover, as neither document provides any suggestion of the problem sought to be solved by the instant invention, Applicants submit that the art of record fails to provide the necessary motivation or rationale for combining the documents in any manner which would render the instant invention obvious.



Further, Applicants submit that claims 9 and 10 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of KAMPS and KOTITSCHKE teaches or suggests, *inter alia*, a conditioning device assigned to said at least one dewatering wire, as recited in claim 9; and said conditioning device comprises a wire cleaning device, as recited in claim 10.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 9 and 10 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

2. Over Kamps in view of Eaton

Applicants traverse the rejection of claims 12 - 14 under 35 U.S.C. § 103(a) as being unpatentable over KAMPS in view of EATON et al. (U.S. Patent No. 5,225,042) [hereinafter "EATON"].

Applicants note that, like KAMPS discussed above, EATON fails to teach or suggest a dewatering wire having at least two zones with different wire permeabilities, and certainly fails to teach or suggest that the different wire permeabilities are formed by warp and weft threads.

As both applied documents fail to teach or suggest at least the above-noted features, Applicants submit that no proper combination of these documents can render unpatentable

the combination of features recited in at least independent claims 1 and 11, as now amended.

Moreover, as neither document provides any suggestion of problem sought to be addressed by the instant invention, Applicants submit that the art of record fails to provide the necessary motivation or rationale for combining the documents in any manner which would render the instant invention obvious.

Further, Applicants submit that claims 12 - 14 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of KAMPS and EATON teaches or suggests, *inter alia*, performing dewatering at a machine speed that is greater than approximately 1300 m/min, as recited in claim 12; the dewatering is performed at greater than approximately 1500 m/min, as recited in claim 13; the dewatering is performed at greater than approximately 1800 m/min, as recited in claim 14.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 12 - 14 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

3. Over Kamps in view of Turunen

Applicants traverse the rejection of claims 5, 12 - 14, and 18 under 35 U.S.C. § 103(a) as being unpatentable over KAMPS in view of TURUNEN et al. (U.S. Patent No. 4,144,124)

[hereinafter “TURUNEN”].

Applicants note that TURUNEN fails to teach or suggest a forming region having dewatering wire with at least two zones with different wire permeabilities. Moreover, this document fails to provide any suggestion of different wire permeabilities formed by warp and weft threads.

As both applied documents fail to teach or suggest at least the above-noted features, Applicants submit that no proper combination of these documents can render unpatentable the combination of features recited in at least independent claims 1 and 11, as now amended.

Moreover, as neither document provides any suggestion of the problem addressed by the instant invention, Applicants submit that the art of record fails to provide the necessary motivation or rationale for combining the documents in any manner which would render the instant invention obvious.

Further, Applicants submit that claims 5, 12 - 14, and 18 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of KAMPS and TURUNEN teaches or suggests, *inter alia*, said former comprises a double wire former, as recited in claim 5; performing dewatering at a machine speed that is greater than approximately 1300 m/min, as recited in claim 12; the dewatering is performed at greater than approximately 1500 m/min, as recited in claim 13;

the dewatering is performed at greater than approximately 1800 m/min, as recited in claim 14; and the former comprises a double wire former, as recited in claim 18.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 5, 12 - 14, and 18 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

4. Over Kamps in view of any of Kotitschke, Eaton, Turunen and further in view of SE '053 or Hayes

Applicants traverse the rejection of claims 1 - 24 under 35 U.S.C. § 103(a) as being unpatentable over KAMPS in view of any of KOTITISCHKE, EATON, or TURUNEN, and further in view of SE 427053 [hereinafter "SE '053"] or HAY et al. (U.S. Patent No. 6,237,644) [hereinafter "HAY"].

Applicants note that, while HAY and SE '053 disclose various belts or wires formed with various weave patterns, neither document provides any teaching or suggestion that these belts or wires include at least two zones having different wire permeabilities, nor is there any suggestion in either document that the warp and weft threads form such zones of different wire permeability. The disclosure in each document is related to the weave pattern, and there is no suggestion that zones of different wire permeability are formed by the disclosed weave.

Because none of the applied documents provide any teaching or suggestion of the above-noted features, Applicants submit that no proper combination of these documents can

render the combination of features recited in at least independent claims 1 and 11 unpatentable.

Moreover, Applicants note that, while certain specific design features of the belt are described, the applied documents certainly fail to identify the problem to be solved by the instant amendment, i.e., to enhance physical properties of the web. Instead, it appears that the variously disclosed weave patterns of SE '053 and HAYES are provided merely to give a desired appearance to the finished web. As there is no suggestion of having any effect on physical parameters of the finished web, Applicants submit that the art of record fails to provide the necessary motivation or rationale to render combine these documents in any manner that would render the instant invention obvious.

Applicants further note that the art fails to provide any teaching or suggestion that the identified zones of SE '053 and/or HAYES inherently have different wire permeabilities, as well as no suggestion that the warp and weft thread form such zones of different wire permeabilities. Thus, Applicants submit that the art of record fails to provide any teaching or suggestion for combining the art of record in any manner that would render the instant invention unpatentable.

Further, Applicants submit that claims 2 - 10 and 12 - 24 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit

that no proper combination of KAMPS, KOTITSCHKE, EATON, TURUNEN, SE '053, and HAYES teaches or suggests, *inter alia*, said at least one dewatering wire is provided in an initial dewatering region, as recited in claim 2; a former which includes a forming element and two circulating, continuous dewatering belts, at least one of which comprises said at least one dewatering wire with at least two different wire permeabilities, said two circulating belts being arranged to converge to form a stock inlet nip, and then being guided over said forming element, as an outer belt, which does not come into contact with said forming element and as an inner belt, wherein at least one of said outer belt and said inner belt comprise said at least one dewatering wire with at least two different wire permeabilities, as recited in claim 3; said forming element comprises a forming roll, as recited in claim 4; said former comprises a double wire former, as recited in claim 5; said former comprises a crescent former, wherein said outer belt is formed by said at least one dewatering wire with at least two different wire permeabilities and wherein said inner belt is formed by a felt belt, as recited in claim 6; said at least one dewatering wire comprises a woven material formed of warp and weft threads, as recited in claim 7; said at least two zones of different wire permeabilities of said at least one dewatering wire are formed by weaving threads of at least one of different diameter and different weaving pattern, as recited in claim 8; a conditioning device assigned to said at least one dewatering wire, as recited in claim 9; said conditioning device comprises a wire cleaning device, as recited in claim 10; performing dewatering at

a machine speed that is greater than approximately 1300 m/min, as recited in claim 12; the dewatering is performed at greater than approximately 1500 m/min, as recited in claim 13; the dewatering is performed at greater than approximately 1800 m/min, as recited in claim 14; using the at least one dewatering wire in an initial dewatering region, as recited in claim 15; the use of a former which includes a forming element and two circulating, continuous dewatering belts, at least one of which comprises said at least one dewatering wire with at least two different wire permeabilities; the two circulating belts being arranged to converge to form a stock inlet nip, and then being guided over the forming element, as an outer belt, which does not come into contact with the forming element and as an inner belt, wherein at least one of the outer belt and the inner belt comprise the at least one dewatering wire with at least two different wire permeabilities, as recited in claim 16; the forming element comprises a forming roll, as recited in claim 17; the former comprises a double wire former, as recited in claim 18 the former comprises a crescent former, wherein the outer belt is formed by a dewatering wire with at least two different wire permeabilities and wherein the inner belt is formed by a felt belt, as recited in claim 19; the at least one dewatering wire comprises a woven material formed of warp and weft threads, as recited in claim 20; the at least two zones of different wire permeabilities of the at least one dewatering wire are formed by weaving threads comprising at least one of different diameter and different weaving pattern, as recited in claim 21; at least one dewatering wire is used in a region in which a dry

content of the tissue web is less than approximately 20%, as recited in claim 22; the dry content of the tissue web is less than approximately 12%, as recited in claim 23; the at least one dewatering wire is used in an initial sheet forming region at a dry content less than approximately 6%, as recited in claim 24.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1 - 24 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

***Newly Submitted Claims are Allowable***

Applicants submit that newly submitted claims 25 and 26 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of the applied documents teaches or suggests, *inter alia*, said at least two zones having different wire permeabilities are structured to produce different dewatering speeds, as recited in claim 25; and dewatering speeds in the at least two zones are different, as recited in claim 26.

Accordingly, Applicants request that the Examiner consider the merits of newly submitted claims 25 and 26 and indicate the allowability of the application in the next official action.

***Application is Allowable***

Thus, Applicants respectfully submit that each and every pending claim of the present



invention meets the requirements for patentability under 35 U.S.C. §§ 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

***Authorization to Charge Deposit Account***

The Commissioner is authorized to charge to Deposit Account No. 19 - 0089 any necessary fees, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, in order to maintain pendency of this application.

**CONCLUSION**

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants' invention, as recited in each of claims 1 - 26. The claims have been amended to eliminate any arguable basis for rejection under 35 U.S.C. § 112. In addition, the applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

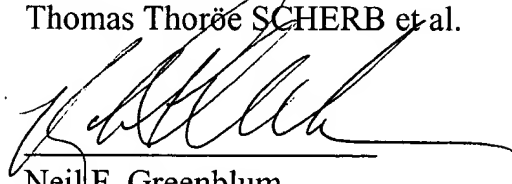
Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the

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present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,  
Thomas Thorøe SCHERB et al.



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**APPENDIX**

***Marked-Up Copies of the Amended Paragraphs:***

*Please replace paragraph [0005] with the following amended paragraph:*

**[0005]** With regard to the tissue machine, this aspect is attained according to the invention in that in the forming region, at least one dewatering wire with zonally variable (different) wire permeability is provided, i.e., a so-called DSP wire.

*Please replace paragraph [0023] with the following amended paragraph:*

**[0023]** According to another aspect of the present invention, a former having two circulating, continuous dewatering belts is used. The belts converge, forming a stock inlet nip, and then are guided over a forming element, in particular a forming roll. [a] A dewatering wire with zonally variable wire permeability is provided as an outer belt that does not come into contact with the forming element and/or as an inner belt.

*Please replace paragraph [0045] with the following amended paragraph:*

**[0045]** The formers 10 shown in Figs. 1 and 2 are each part of a machine for producing a tissue web 12. In the forming region, preferably in the initial dewatering region, at least one dewatering wire each, with zonally variable (different) wire permeability, that is, a DSP screen is provided.

***Marked-Up Copies of the Amended Claims:***

1. (Amended) A machine for producing a tissue web, comprising:  
a forming region with at least one circulating, continuous dewatering wire,

wherein said dewatering wire comprises at least two zones having [with zonally variable] different wire [permeability] permeabilities formed by warp and weft threads.

3. (Amended) The machine according to claim 1, further comprising a former which includes a forming element and two circulating, continuous dewatering belts, at least one of which comprises said at least one dewatering wire with [zonally variable] at least two different wire [permeability] permeabilities;

said two circulating belts being arranged to converge to form a stock inlet nip, and then being guided over said forming element, as an outer belt, which does not come into contact with said forming element and as an inner belt, wherein at least one of said outer belt and said inner belt comprise said at least one dewatering wire with [zonally variable] at least two different wire [permeability] permeabilities.

6. (Amended) The machine according to claim 3, wherein said former comprises a crescent former, wherein said outer belt is formed by said at least one dewatering wire with [zonally variable] at least two different wire [permeability] permeabilities and wherein said inner belt is formed by a felt belt.

8. (Amended) The machine according to claim 7, wherein said at least two zones of [variable] different wire [permeability] permeabilities of said at least one dewatering [belt] wire are formed by weaving threads of at least one of [a variable] different diameter and [variable] different weaving pattern.

11. (Amended) A process for producing a tissue web in a tissue machine, the process comprising:

forming the tissue web in a forming region of the tissue machine [, wherein the forming region includes] on at least one circulating, continuous dewatering wire comprising at least two zones having [zonally variable] different wire [permeability] permeabilities formed by warp and weft threads.

16. (Amended) The process according claim 11, further comprising the use of a former which includes a forming element and two circulating, continuous dewatering belts, at least one of which comprises said at least one dewatering wire with [zonally variable] at least two different wire [permeability] permeabilities; the two circulating belts being arranged to converge to form a stock inlet nip, and then being guided over the forming element, as an outer belt, which does not come into contact with the forming element and as an inner belt, wherein at least one of the outer belt and the inner belt comprise the at least one dewatering wire with [zonally variable] at least two different wire [permeability] permeabilities.

21. (Amended) The process according to claim 11, wherein the at least two zones of [variable] different wire [permeability] permeabilities of the at least one dewatering [belt] wire are [generated] formed by [using] weaving threads comprising at least one of [variable] different diameter and [variable] different weaving pattern.